

WHEAT (*Triticum aestivum* L. 'Reeder')
 Tan spot; *Pyrenophora tritici-repentis*
 Septoria; *Septoria* spp.
 Fusarium head blight; *Fusarium graminearum*

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Evaluation of foliar fungicide treatments for control of leaf spot diseases & FHB in spring wheat at Mott, ND, 2007.

The experiment was conducted in a producer's field near Mott, ND (NE ¼, Section 27, T136N, R93W – Hettinger County, ND) with a previous cropping history of wheat in 2006. A randomized complete block design with four replications was used. Plots were 10 ft wide by 50 ft long with a 3 ft buffer strip of winter wheat seeded between each plot. A preplant application of glyphosate was made on 14 Apr. Plots were seeded with a drill equipped with Cross-slot openers on 30 Apr 2007 at the rate of 247 pls m⁻². A post emergent herbicide application of Harmony GT XP @ 0.5 oz/acre + Bronate Advance @ 16.0 fl oz/acre + Activator 90 NIS @ .25% v/vol. on May 27, 2007. Fungicide applications at Feekes growth stage (FGS) 2 were made on 04 Jun, applications at FGS 9 were made on 22 Jun and applications at FGS 10.51 were done on 3 Jul. All treatments were applied in 19.1 gal/A water at 30 psi using a CO₂ pressurized hand-held spray boom equipped with 8002VS flat fan nozzles. Tan spot disease evaluations were conducted on 12 Jun, leaf spot disease evaluations were done on 22 Jun and leaf rust evaluations were conducted on 09 Jul. Evaluations consisted of observations made on ten consecutive plants in the center row of each plot. Incidence was recorded as the percent of plants with at least one lesion observed, and severity was recorded as the average leaf area covered by lesions for all leaves for the early season evaluation, only the top three leaves for the mid-season evaluation, and the flag leaf for the late season evaluation. Crop injury observations were made at the same time as the disease evaluations. No crop injury from the fungicide applications was observed. No visual symptoms of Fusarium head blight (FHB) were detected in an evaluation of 10 consecutive heads in the center of each plot at soft dough. Grain samples from the control plots were sent to NDSU for DON analysis and no DON was detected in these samples. No further testing for DON in grain samples produced from fungicide treatments was done. Precipitation at the North Dakota Agricultural Weather Network Mott, ND weather station in May, June, and July was 3.58, 3.76, 0.50 inches respectively. Moist conditions in May and June promoted tan spot, septoria and leaf rust and dry weather conditions in July were not conducive for FHB development. Disease ratings reflect moisture conditions at the time the crop was susceptible to infection. Harvest was with a Massy Ferguson 8XP combine on 10 Aug. Grain yield, test weight, and protein were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical software v 9.1 Proc ANOVA.

Treatment ¹	Rate	Yield	Test weight	Protein
	fl oz/acre	bu/acre	lb/bu	%
Check	-	38.4	56.2	15.9
Stratego FGS2	4	41.2	55.4	15.7
Stratego FGS9	8	45.6	58.3	16.7
Prosaro421 SC + Induce FGS9	6.5 + 0.125% v/v	48.3	58.3	16.6
Prosaro 421SC + Induce FGS10.51	6.5 + 0.125% v/v	42.8	58.4	16.1
Stratego FGS2/ Prosaro 421SC + Induce FGS10.51	4 - 6.5 + 0.125% v/v	42.3	57.8	16.3
Stratego FGS9/ Prosaro 421SC + Induce FGS 10.51	8 - 6.5 + 0.125% v/v	47.9	58.9	16.6
Mean		43.8	57.6	16.3
CV		8.5	1.3	1.1
LSD .05		5.5	1.1	0.3
SE		1.85	0.36	0.09
Trt F Prob		0.0124	<.0001	<.0001
Rep F Prob		0.0643	0.5644	0.8455

¹ FGS2 = Feekes growth stage 2 or 4 to 5 leaf stage of crop development, FGS9 = Feekes growth stage 9 or flag leaf stage of crop development, FGS10.51 = Feekes growth stage 10.51 or beginning of flowering.

Treatment ¹	Rate	Tan spot		Leaf spotting diseases		Leaf rust	
		I ²	S ³	I ²	S ³	I ²	S ³
	fl oz/acre						
Check	-	92.5	28.0	47.5	3.0	100.0	75.0
Stratego FGS2	4	17.5	1.3	30.0	2.0	100.0	75.0
Stratego FGS9	8	95.0	26.5	0.0	0.0	97.5	8.0
Prosaro421 SC + Induce FGS9	6.5 + 0.125%v/ v	95.0	28.0	0.0	0.0	17.5	0.8
Prosaro 421SC + Induce FGS10.51	6.5 + 0.125%v/ v	90.0	26.3	27.5	1.8	82.5	11.0
Stratego FGS2 /Prosaro 421SC + Induce FGS10.51	4 - 6.5+ 0.125%v/ v	7.5	0.5	32.5	1.0	90.0	8.5
Stratego FGS9/ Prosaro 421SC + Induce FGS 10.51	8 - 6.5 + 0.125%v/ v	97.5	25.5	0.0	0.0	40.0	3.5
Mean		70.7	19.4	19.6	1.1	75.4	26.0
CV		13.6	14.4	26.8	59.4	14.7	23.2
LSD .05		14.3	4.2	7.8	1.0	16.5	8.9
SE		4.8	1.4	2.6	0.3	5.5	3.0
Trt F Prob		<.0 001	<.0001	<.0001	<.0001	<.0001	<.0001
Rep F Prob		0.47 03	0.03934	0.2484	0.5402	0.6413	0.6402

¹ FGS2 = Feekes growth stage 2 or 4 to 5 leaf stage of crop development, FGS9 = Feekes growth stage 9 or flag leaf stage of crop development, FGS10.51 = Feekes growth stage 10.51 or beginning of flowering.

²I = Incidence of disease is the percent of plants showing disease symptoms.

³S = Severity of disease is the percent of leaf area covered by lesions 12 Jun evaluation includes all visible leaves, 22 Jun evaluation includes only the last three fully developed leaves, and the 9 Jul evaluation includes only the flag leaf.